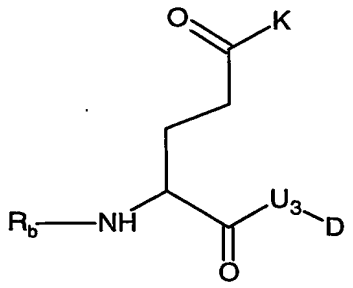
Claims

What is claimed is:

1. A compound of Formula (I), or a pharmaceutically acceptable salt thereof,



(I)

wherein:

R_b is a hydrogen or a lower alkyl group;

D is a hydrogen, V_3 or K;

U_3 at each occurrence is independently an oxygen, $-S(O)_o-$ or $-N(R_a)R_i$;

o is an integer from 0 to 2;

K is $-(W_3)_a-E_b-(C(R_e)(R_f))_{p1}-E_c-(C(R_e)(R_f))_x-(W_3)_d-(C(R_e)(R_f))_y-(W_3)_i-E_j-(W_3)_g-(C(R_e)(R_f))_z-U_3-V_3$;

V_3 is a hydrogen or $-NO_2$;

a, b, c, d, g, i and j are each independently an integer from 0 to 3;

p_1, x, y and z are each independently an integer from 0 to 10;

W_3 at each occurrence is independently -C(O)-, -C(S)-, $-T_3-$, $-(C(R_e)(R_f))_h-$, an alkyl group, an aryl group, a heterocyclic ring, an arylheterocyclic ring, or $-(CH_2CH_2O)_{q1}-$;

E at each occurrence is independently $-T_3-$, an alkyl group, an aryl group, $-(C(R_e)(R_f))_h-$, a heterocyclic ring, an arylheterocyclic ring, or $-(CH_2CH_2O)_{q1}-$;

T_3 at each occurrence is independently a covalent bond, a carbonyl, an oxygen, $-S(O)_o-$ or $-N(R_a)R_i$;

h is an integer form 1 to 10;

q_1 is an integer from 1 to 5;

R_e and R_f are each independently a hydrogen, an alkyl, a cycloalkoxy, a halogen, a hydroxy, an hydroxyalkyl, an alkoxyalkyl, an arylheterocyclic ring, an alkylaryl, an

alkylcycloalkyl, an alkylheterocyclic ring, a cycloalkylalkyl, a cycloalkylthio, an arylalklythio, an arylalklythioalkyl, an alkylthioalkyl a cycloalkenyl, an heterocyclicalkyl, an alkoxy, a haloalkoxy, an amino, an alkylamino, a dialkylamino, an arylamino, a diarylamino, an alkylarylamino, an alkoxyhaloalkyl, a sulfonic acid, a sulfonic ester, an alkylsulfonic acid, an arylsulfonic acid, an arylalkoxy, an alkylthio, an arylthio, a cyano an aminoalkyl, an aminoaryl, an aryl, an arylalkyl, an alkylaryl, a carboxamido, a alkylcarboxamido, an arylcarboxamido, an amidyl, a carboxyl, a carbamoyl, an alkylcarboxylic acid, an arylcarboxylic acid, an alkylcarbonyl, an arylcarbonyl, an ester, a carboxylic ester, an alkylcarboxylic ester, an arylcarboxylic ester, a sulfonamido, an alkylsulfonamido, an arylsulfonamido, an alkylsulfonyl, an alkylsulfonyloxy, an arylsulfonyl, arylsulphonyloxy, a sulfonic ester, an alkyl ester, an aryl ester, a urea, a phosphoryl, a nitro or K; or R_e and R_f taken together with the carbons to which they are attached form a carbonyl, a methanthial, a heterocyclic ring, a cycloalkyl group, an aryl group, an oxime, a hydrazone or a bridged cycloalkyl group;

R_a is a lone pair of electrons, a hydrogen or an alkyl group;

R_i is a hydrogen, an alkyl, an aryl, an alkylcarboxylic acid, an arylcarboxylic acid, an alkylcarboxylic ester, an arylcarboxylic ester, an alkylcarboxamido, an arylcarboxamido, an alkylaryl, an alkylsulfinyl, an alkylsulfonyl, an alkylsulfonyloxy, an arylsulfinyl, an arylsulfonyl, arylsulphonyloxy, a sulfonamido, a carboxamido, a carboxylic ester, an aminoalkyl, an aminoaryl, $-CH_2-C(U_3-V_3)(R_e)(R_f)$, a bond to an adjacent atom creating a double bond to that atom, $-(N_2O_2-)^-\bullet M_1^+$, wherein M_1^+ is an organic or inorganic cation; and

with the proviso that the compounds of Formula (I) must contain least one of a nitrate or a thionitrate group.

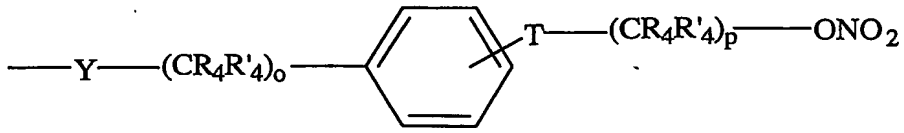
2. A composition comprising the compound of claim 1 and a pharmaceutically acceptable carrier.

3. The compound of claim 1, wherein the compound of Formula (I) is a nitrosated glutamic acid compound.

4. The compound of claim 1, wherein K is:

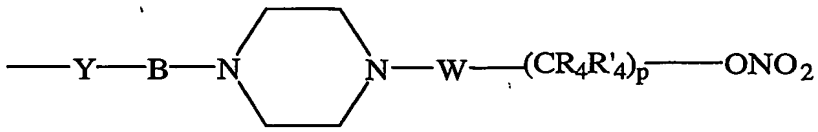
(1) $-Y-(CR_4R_4')_p-T-(CR_4R_4')_p-ONO_2$;

(2)



wherein T is ortho, meta or para;

(3)



(4) $-Y-(CR_4C_4')_p-V-B-T-(CR_4R_4')_p-ONO_2$;

(5) $-Y-(CR_4R_4')_p-T-C(O)-(CR_4R_4')_k-(CH_2)-ONO_2$;

(6) $-Y-(CR_4R_4')_p-C(Z)-(CH_2)_q-T-(CR_4R_4')_q-(CH_2)-ONO_2$;

(7) $-Y-(CR_4R_4')_p-T-(CH_2)_q-V-(CR_4R_4')_q-(CH_2)-ONO_2$;

(8) $-Y-(CR_4R_4')_p-V-(CH_2)_q-V-(CR_4R_4')_q-(CH_2)-ONO_2$;

(9) $-Y-(CR_4R_4')_k-(W)_q-(CR_4R_4')_k-(CH_2)-ONO_2$;

(10) $-NR_j-O-(CH_2)_k-V-(CR_4R_4')_q-(CH_2)-ONO_2$;

(11) $-NR_j-O-(CH_2)_k-(W)_q-(CR_4R_4')_q-(CH_2)-ONO_2$;

(12) $-O-NR_j-(CH_2)_k-(W)_q-(CR_4R_4')_q-(CH_2)-ONO_2$;

(13) $-Y-(CH_2)_k-(W)_q-(CH_2)_k-V-(CR_4R_4')_k-Q'-(CR_4R_4')_k-(CH_2)-ONO_2$;

(14) $-Y-(CR_4R_4')_p-V-(CH_2)_k-(W)_q-(CR_4R_4')_q-(CH_2)-ONO_2$;

(15) $-O-NR_j-(CH_2)_k-V-(CR_4R_4')_q-(CH_2)-ONO_2$;

(16) $-Y-(CR_4R_4')_k-Q'-(CR_4R_4')_k-V-(CR_4R_4')_k-(CH_2)-ONO_2$;

(17) $-Y-(CR_4R_4')_k-Q'-(CR_4R_4')_k-(W)_q-(CR_4R_4')_k-(CH_2)-ONO_2$;

(18) $-Y-(CR_4R_4')_p-T-(CR_4R_4')_p-Q'-(CR_4R_4')_k-(CH_2)-ONO_2$;

(19) $-Y-(CR_4R_4')_q-C(Z)-(CR_4R_4')_k-(CH_2)-ONO_2$;

(20) $-Y-(CR_4R_4')_p-Q'-(CR_4R_4')_k-(CH_2)-ONO_2$;

(21) $-Y-(CR_4R_4')_q-P(O)MM'$;

(22) $-Y-(CR_4R_4')_k-Q'-(CR_4R_4')_k-(CH_2)-ONO_2$;

(23) $-Y-(CR_4R_4')_k-Q'-(CR_4R_4')_k-T-(CR_4R_4')_k-(CH_2)-ONO_2$;

(24) $-Y-(CR_4R_4')_q-(W)_q-(CR_4R_4')_k-Q'-(CR_4R_4')_k-(CH_2)-ONO_2$;

(25) $-Y-(CR_4R_4')_q-V-(CR_4R_4')_k-Q'-(CR_4R_4')_k-(CH_2)-ONO_2$;

(26) $-Y-(CR_4R_4')_p-(T)_o-(W)_q-(CR_4R_4')_k-(CH_2)-ONO_2$;

(27) $-Y-(CR_4R_4')_p-(W)_q-(T)_o-(CR_4R_4')_k-(CH_2)-ONO_2$;

(28) $-Y-(CR_4R_4')_q-C(Z)-V-(CR_4R_4')_q-(CH_2)-ONO_2$;

(29) $-Y-(CR_4R_4')_k-C(R_4)(ONO_2)-(CR_4R_4')_q-(T)_o-(W)_q-(T)_o-(CR_4R_4')_k-R_5$;

(30) $-Y-(CR_4R_4')_k-V-(CR_4R_4')_k-Q'-(CR_4R_4')_k-(CH_2)-ONO_2$;

(31) $-Y-(CR_4R_4')_q-C(Z)-Q'-(CR_4R_4')_k-(CH_2)-ONO_2$;

(32) $-Y-(CR_4R_4')_p-V-(CR_4R_4')_p-(CH_2)-ONO_2$;

(33) $-Y-(CR_4R_4')_p-V-(CH_2)_q-(T)_o-(CR_4R_4')_q-(CH_2)-ONO_2$;

(34) $-Y-(CR_4R_4')_p-(T)_o-Q'-(T)_o-(CR_4R_4')_q-(CH_2)-ONO_2$;

(35) $-Y-(CR_4R_4')_q-C(Z)-(CR_4R_4')_q-V-(CR_4R_4')_k-Q'-(CR_4R_4')_k-(CH_2)-ONO_2$;

(36) $-Y-(CR_4R_4')_q-C(Z)-(CR_4R_4')_q-(W)_q-(CR_4R_4')_k-Q'-(CR_4R_4')_k-(CH_2)-ONO_2$;

(37) $-NR_j-O-(CH_2)_k-V-(CR_4R_4')_k-Q'-(CH_2)-ONO_2$;

(38) $-NR_j-O-(CH_2)_k-(W)_q-(CR_4R_4')_k-Q'-(CH_2)-ONO_2$;

(39) $-O-NR_j-(CH_2)_k-(W)_q-(CR_4R_4')_k-Q'-(CH_2)-ONO_2$;

(40) $-O-NR_j-(CH_2)_k-V-(CR_4R_4')_k-Q'-(CH_2)-ONO_2$;

(41) $-NR_j-NR_j-(CR_4R_4')_p-(W)_q-(T)_o-(CR_4R_4')_k-(CH_2)-ONO_2$; or

(42) $-Y-(CR_4R_4')_k-Q'-(CR_4R_4')_k-ONO_2$; or

(43) $-Y-(CR_4R_4')_k-V-(CR_4R_4')_k-Q-(CR_4R_4')_k-ONO_2$;

R_4 and R_4' at each occurrence are independently a hydrogen, lower alkyl group, -OH, $-CH_2OH$, $-ONO_2$, $-NO_2$ or $-CH_2ONO_2$; or R_4 and R_4' taken together with the carbon atom to which they are attached are a cycloalkyl group or a heterocyclic ring;

V is -C(O)-T-, -T-C(O)-, -T-C(O)-T or T-C(O)-C(O)-T;

W is a covalent bond or a carbonyl group;

T at each occurrence is independently an oxygen, $(S(O)_o)_o$ or NR_j;

R_j is a hydrogen, an alkyl group, an aryl group, a heterocyclic ring, an alkylcarbonyl group, an alkylaryl group, an alkylsulfinyl group, an alkylsulfonyl group, an arylsulfinyl group, an arylsulfonyl group, a sulfonamido group, a N-alkylsulfonamido group, a N,N-diarylsulfonamido group, a N-arylsulfonamido group, a N-alkyl-N-arylsulfonamido group, a carboxamido group or a hydroxyl group;

p at each occurrence is independently an integer from 1 to 6;

q at each occurrence is independently an integer from 1 to 3;

o at each occurrence is independently an integer from 0 to 2;

k at each occurrence is independently an integer from 0 to 4;

Y is independently a covalent bond, a carbonyl, an oxygen, $-S(O)_o-$ or $-NR_j$;

B is either phenyl or $(CH_2)_o$;

Q' is a cycloalkyl group, a heterocyclic ring or an aryl group;

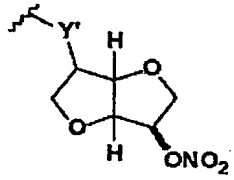
Z is (=O), $(=N-OR_5)$, $(=N-NR_5R'_5)$ or $(=CR_5R'_5)$;

M and M' are each independently $-O^- H_3N^+-(CR_4R'_4)_q-CH_2ONO_2$ or $-T-(CR_4R'_4)_k-CH_2ONO_2$; and

R_5 and R_5' at each occurrence are independently a hydrogen, a hydroxyl group, an alkyl group, an aryl group, an alkylsulfonyl group, an arylsulfonyl group, a carboxylic ester, an alkylcarbonyl group, an arylcarbonyl group, a carboxamido group, an alkoxyalkyl group, an alkoxyaryl group, a cycloalkyl group or a heterocyclic ring.

5. The compound of claim 1, wherein K is:

(1)



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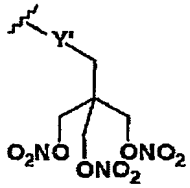

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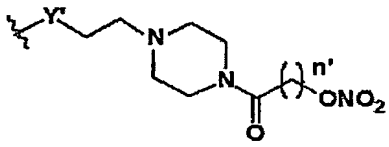

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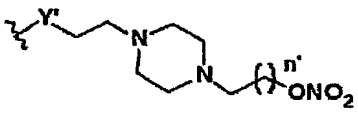

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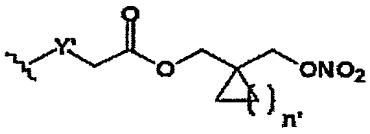

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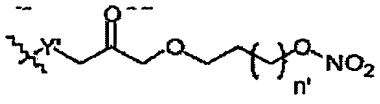

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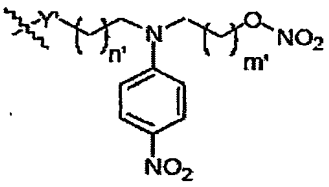

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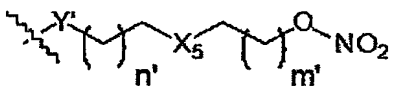

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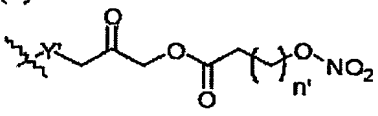

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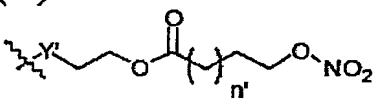

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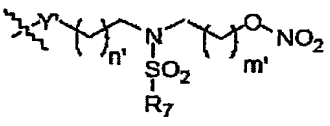

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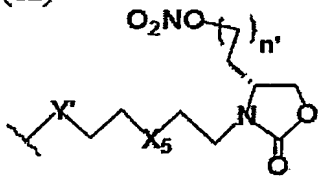

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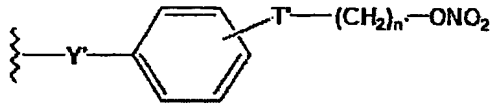

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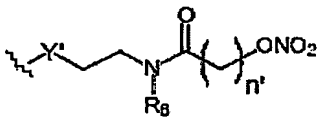
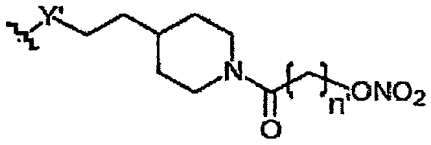


wherein T' maybe ortho, meta or para

(15)



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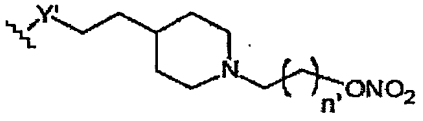

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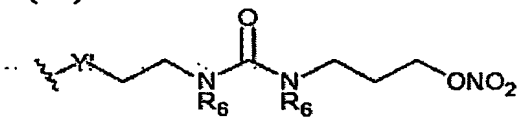

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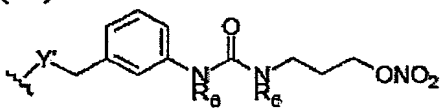

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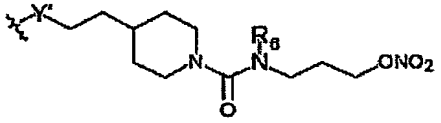

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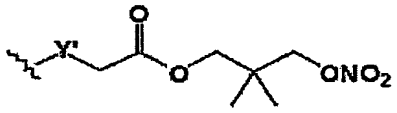

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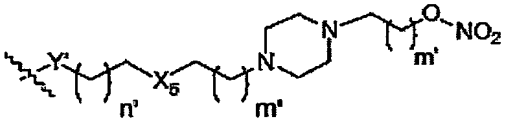

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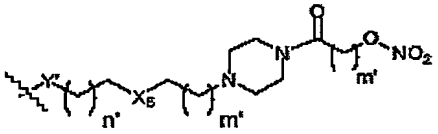

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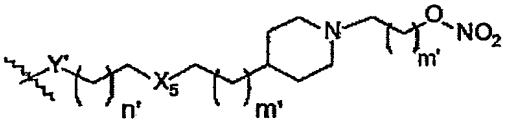

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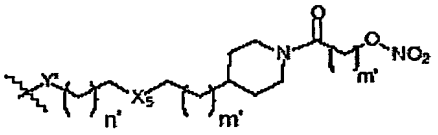

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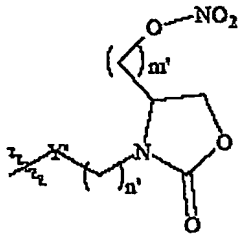

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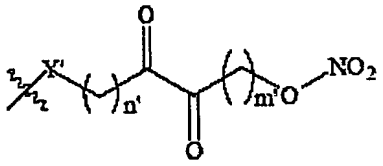

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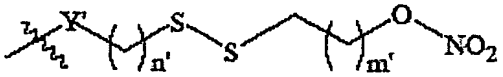

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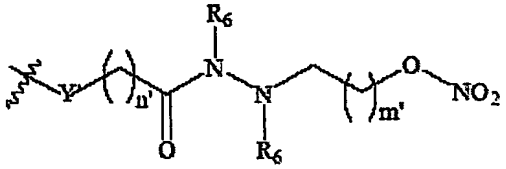

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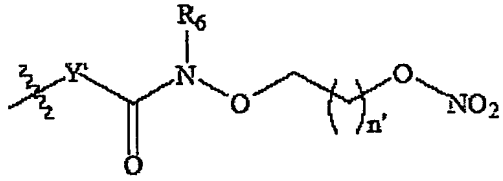

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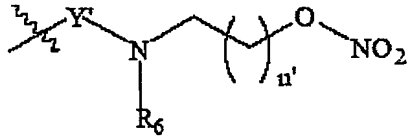

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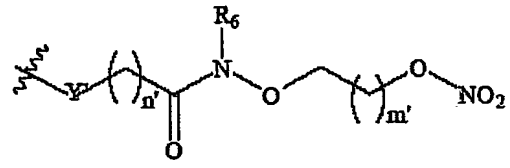

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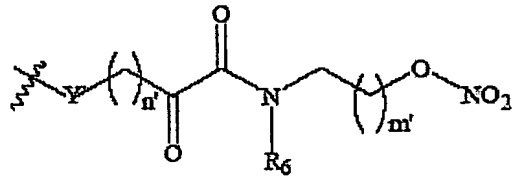

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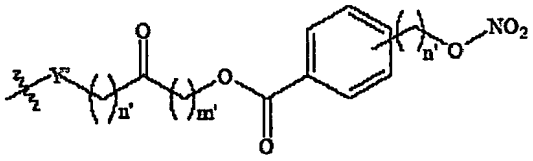

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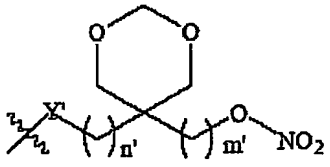

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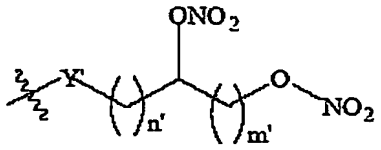

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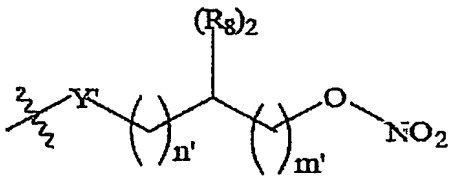

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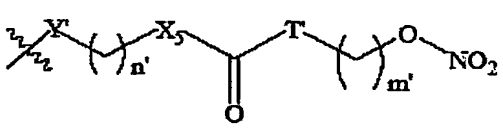

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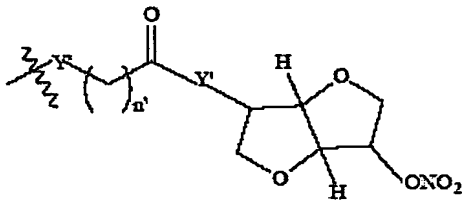

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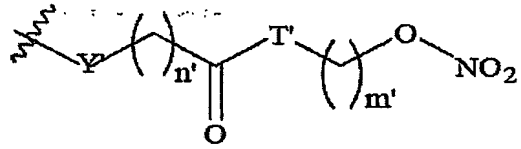

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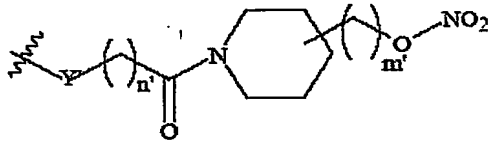

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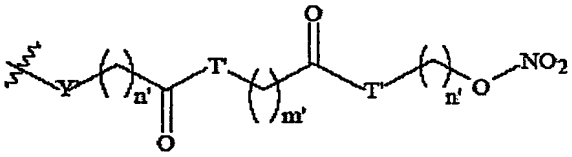

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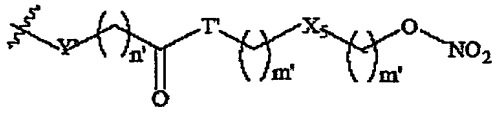

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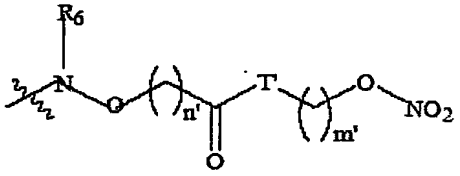

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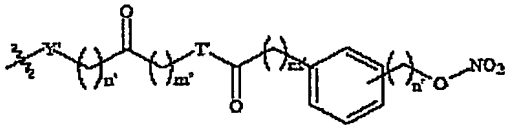

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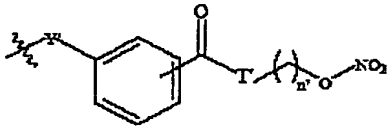

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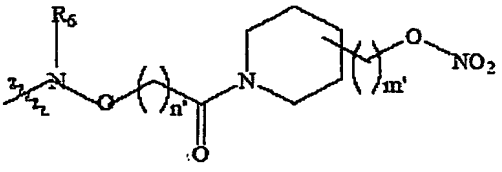

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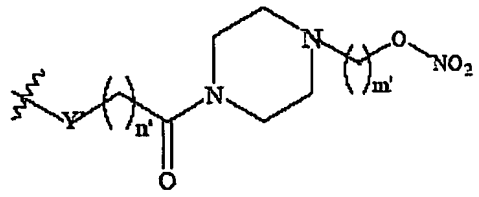

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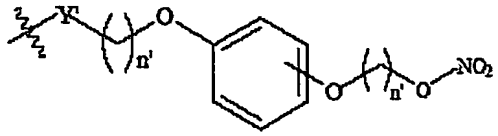

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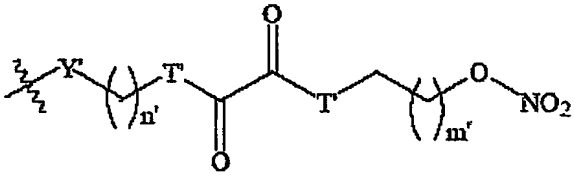

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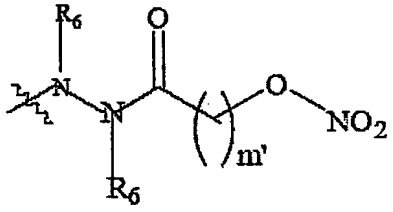

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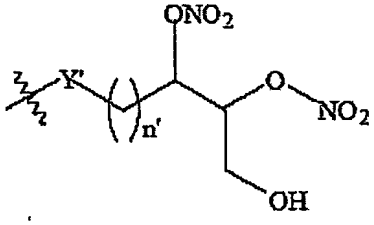

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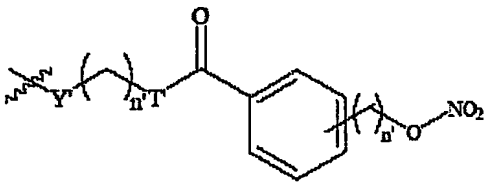

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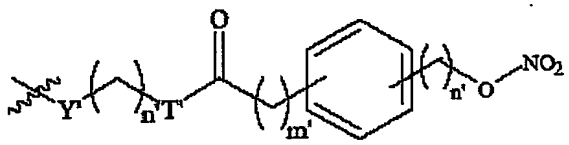

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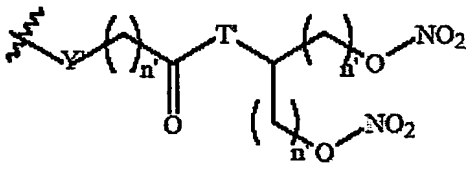

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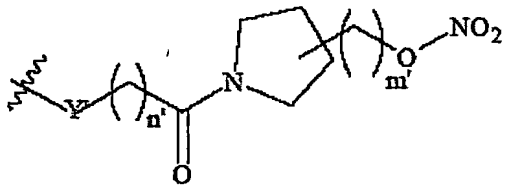

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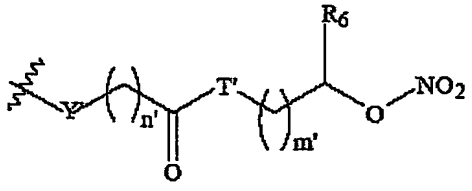


wherein:

Y' a covalent bond, a carbonyl, an oxygen, $-S(O)_o-$ or $-NR_6$;

T' is oxygen, sulfur or NR_6;

X_5 is oxygen, $(S(O)_o)_o$ or NR_6;

R_6 is a hydrogen, a lower alkyl group, an aryl group;

R_7 is a lower alkyl group or an aryl group;

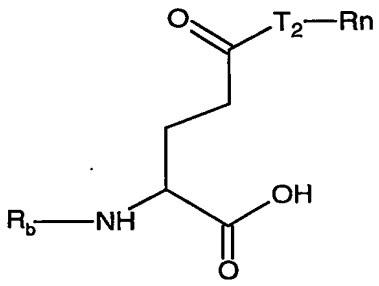
R_8 at each occurrence is independently is a hydrogen, a hydroxyl group, a lower alkyl group, an aryl group, $-NO_2$, $-CH_2-ONO_2$ or $-CH_2-OH$;

n' and m' are each independently an integer from 0 to 10; and

o is an integer from 0 to 2.

6. The compound of claim 1, wherein the compound of Formula (I) is compound of Formula (II), or a pharmaceutically acceptable salt thereof,

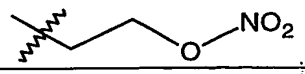
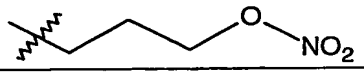
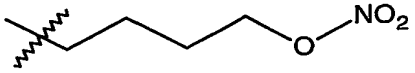
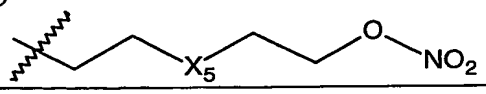
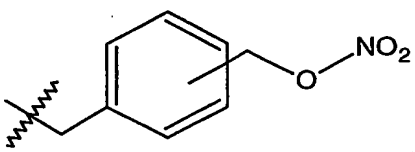
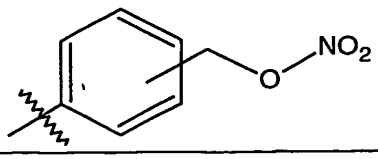
wherein the compound of Formula (II) is:

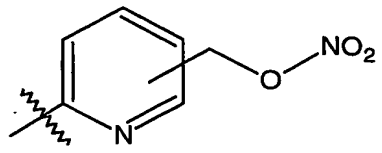
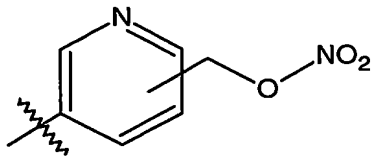
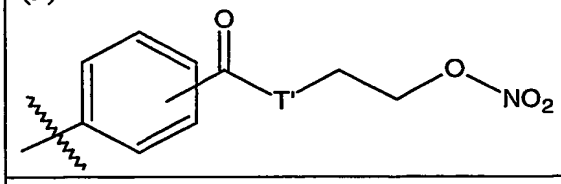
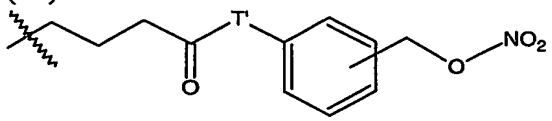
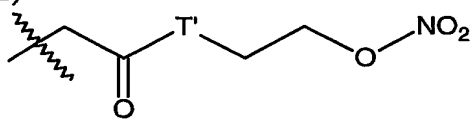
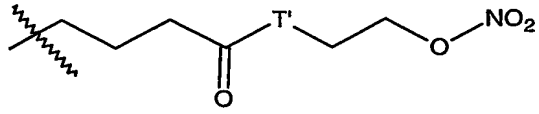
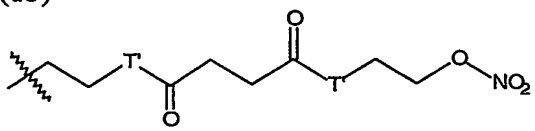
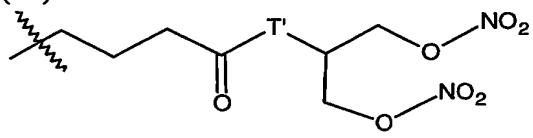
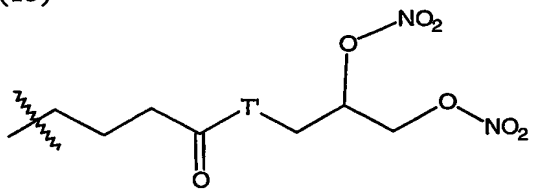
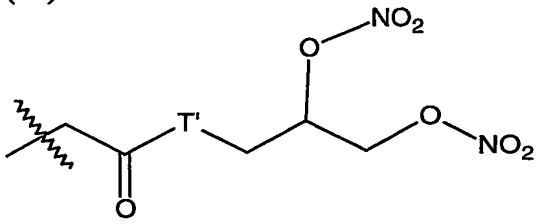
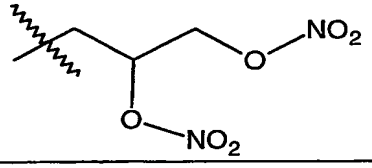
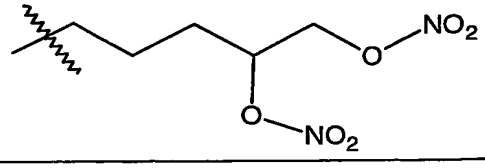


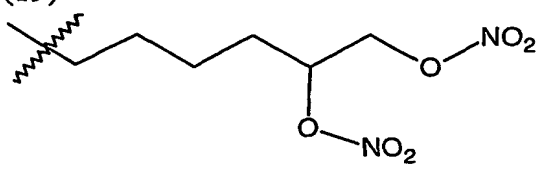
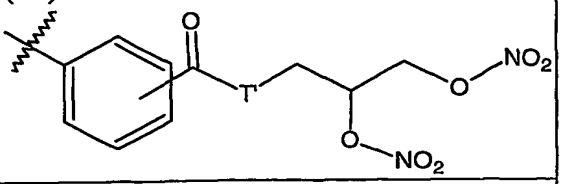
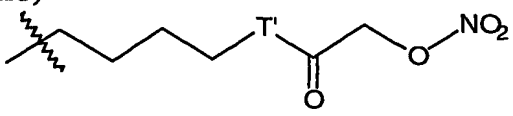
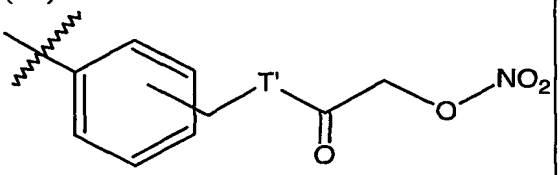
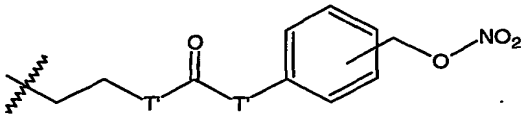
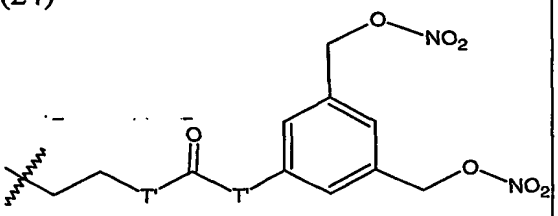
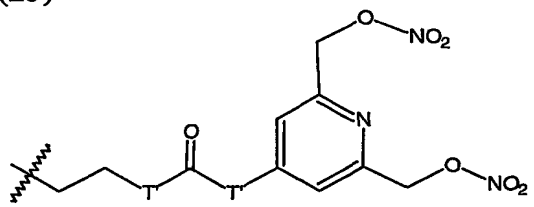
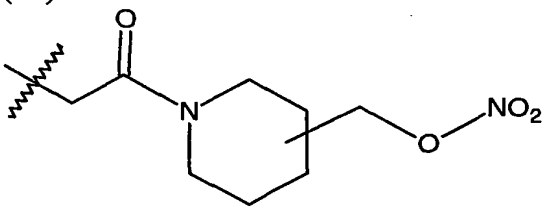
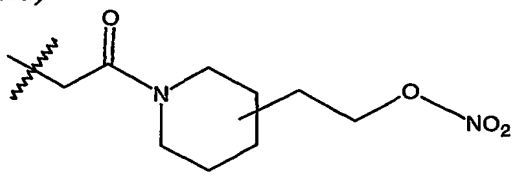
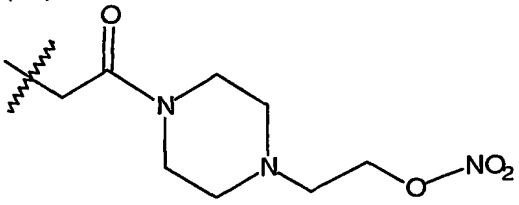
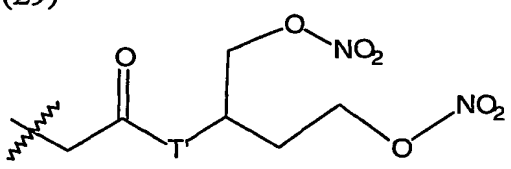
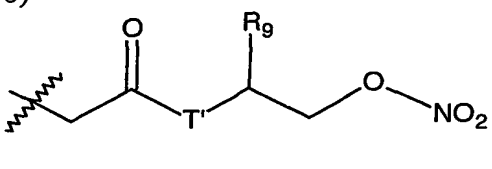
(II)

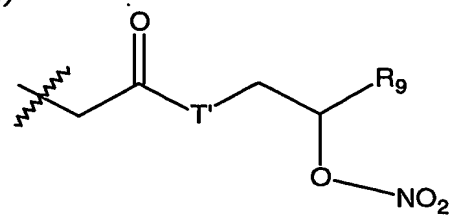
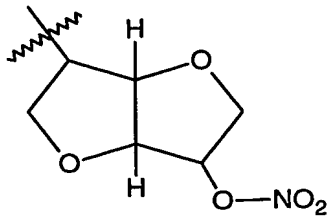
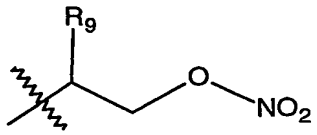
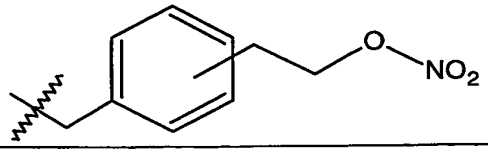
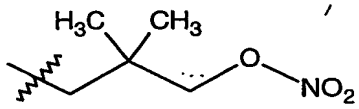
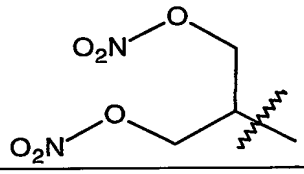
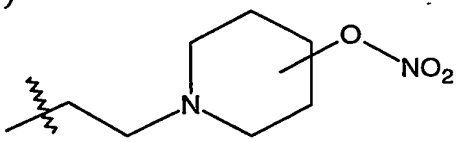
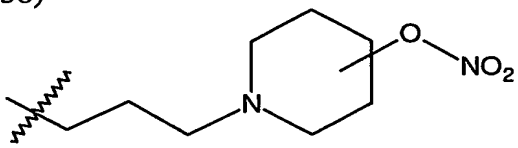
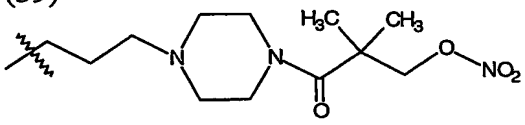
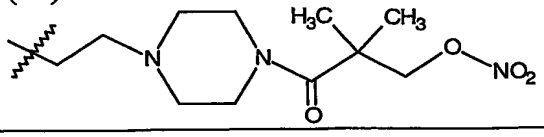
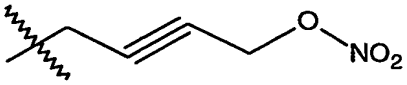
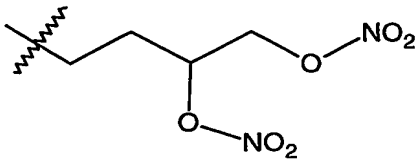
wherein

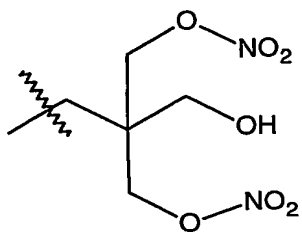
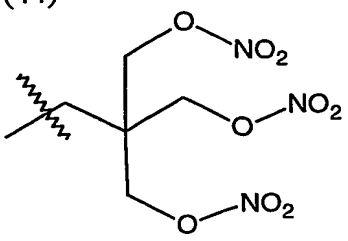
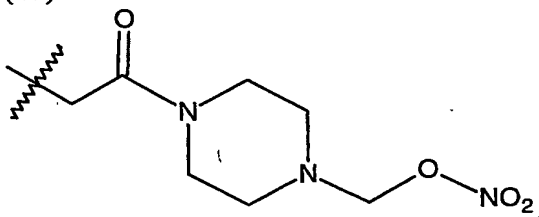
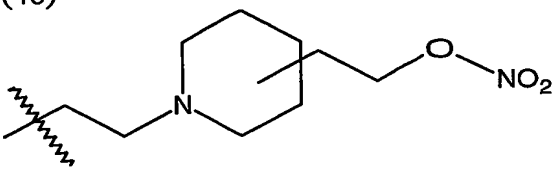
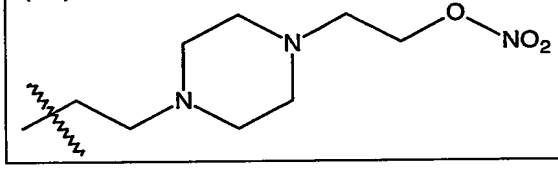
R_n is

(1) 	(2) 
(3) 	(4) 
(5) 	(6) 

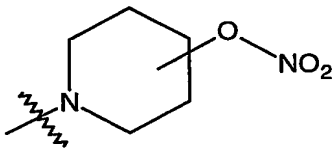
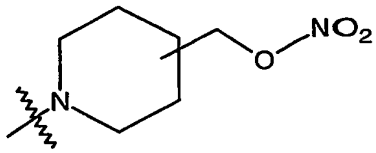
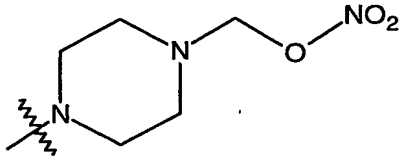
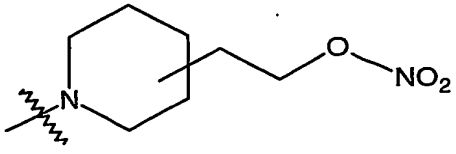
(7) 	(8) 
(9) 	(10) 
(11) 	(12) 
(13) 	(14) 
(15) 	(16) 
(17) 	(18) 

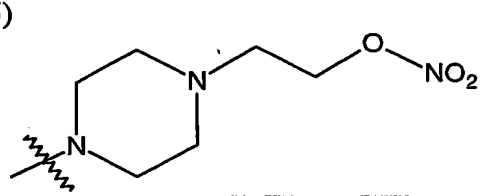
(19) 	(20) 
(21) 	(22) 
(23) 	(24) 
(25) 	(26) 
(27) 	(28) 
(29) 	(30) 

(31) 	(32) 
(33) 	(34) 
(35) 	(36) 
(37) 	(38) 
(39) 	(40) 
(41) 	(42) 

(43)  or	(44) 
(45) 	(46)  or
(47) 	

or T_2-Rn taken together are:

(1) 	(2) 
(3) 	(4)  or

(5) 	

R_9 is a lower alkyl group or an aryl group;

T_2 is oxygen, sulfur, NR_6 or $N(R_{10})(R_{11})$;

R_{10} and R_{11} taken together are a heterocyclic ring; and

X_5, R_b and R_6 are as defined herein.

7. A method for treating a cardiovascular disease in a patient in need thereof comprising administering to the patient a therapeutically effective amount of the composition of claim 2.

8. The method of claim 7, wherein the cardiovascular disease is congestive heart failure, restenosis, hypertension, diastolic dysfunction, a coronary artery disease, myocardial infarction, cerebral infarction, atherosclerosis, atherogenesis, cerebrovascular disease, angina, aneurysm, ischemic heart disease, cerebral ischemia, myocardial ischemia, thrombosis, platelet aggregation, platelet adhesion, smooth muscle cell proliferation, a vascular or non-vascular complication associated with the use of a medical device, a wound associated with the use of a medical device, vascular or non-vascular wall damage, peripheral vascular disease, neointimal hyperplasia following percutaneous transluminal coronary angiograph, vascular grafting, coronary artery bypass surgery, a thromboembolic event, post-angioplasty restenosis, coronary plaque inflammation, hypercholesterolemia, embolism, stroke, shock, arrhythmia, atrial fibrillation or atrial flutter, or thrombotic occlusion and reclusion cerebrovascular incident.

9. The method of claim 8, wherein the cardiovascular disease is congestive heart failure, hypertension or diastolic dysfunction.

10. A method for treating a renovascular disease in a patient in need thereof comprising administering to the patient a therapeutically effective amount of the composition of claim 2.

11. The method of claim 10, wherein the renovascular disease is renal failure or renal insufficiency.

12. A method for treating diabetes, a disease resulting from oxidative stress; treating an endothelial dysfunction; treating a disease caused by endothelial dysfunction; treating cirrhosis; treating pre-eclampsia; treating osteoporosis; or treating nephropathy in a patient in need thereof comprising administering to the patient a therapeutically effective amount of the composition of claim 2.

13. A method for treating a disease resulting from elevated levels of gamma-glutamyl transpeptidase or the targeted delivery of a compound and nitric oxide to an organ, a cell or tissues containing the enzyme gamma-glutamyl transpeptidase in a patient in need thereof comprising administering to the patient a therapeutically effective amount of the composition of claim 2.

14. The composition of claim 2, further comprising (i) at least one therapeutic agent; (ii) at least one nitric oxide donor compound; or (iii) at least one therapeutic agent and at least one nitric oxide donor compound.

15. The composition of claim 14, wherein the therapeutic agent is an aldosterone antagonist, an alpha-adrenergic receptor antagonist, an angiotensin II antagonist, an angiotensin-converting enzyme inhibitor, an antidiabetic compound, an anti-hyperlipidemic compound, an antioxidant, an antithrombotic and vasodilator compound, a β-adrenergic antagonist, a calcium channel blocker, a digitalis, a diuretic, an endothelin antagonist, a hydralazine compound, a H_2 receptor antagonist, a neutral endopeptidase inhibitor, a nonsteroidal antiinflammatory compound, a phosphodiesterase inhibitor, a potassium channel blocker, a platelet reducing agent, a proton pump inhibitor, a renin inhibitor, a selective cyclooxygenase-2 inhibitor, or a combination of two or more thereof.

16. The composition of claim 15, wherein the therapeutic agent is at least one compound selected from the group consisting of an aldosterone antagonist, an angiotensin II antagonist, an angiotensin-converting enzyme inhibitor, a β-adrenergic antagonist, a diuretic and a hydralazine compound.

17. The composition of claim 16, wherein the aldosterone antagonist is eplerenone or spironolactone; the angiotensin II antagonist is candesartan cilexetil, eprosartan mesylate, irbesartan, losartan potassium, medoxomil, telmisartan, trandolapril, trandolaprilat or valsartan; the angiotensin-converting enzyme inhibitor is

benazepril hydrochloride, captopril, enalapril maleate, fosinopril sodium, lisinopril, moexipril hydrochloride, quinapril hydrochloride; the β-adrenergic antagonist is bisoprolol fumarate, carvedilol, metoprolol tartrate, propranolol hydrochloride or timolol maleate; the diuretic is amiloride hydrochloride, chlorthalidone, hydrochlorothiazide or triamterene; and the hydralazine compound is hydralazine hydrochloride.

18. The composition of claim 14, wherein the nitric oxide donor compound is selected from the group consisting of a S-nitrosothiol, a nitrite, a nitrate, a S-nitrothiol, a sydnonimine, a NONOate, a N-nitrosoamine, a N-hydroxyl nitrosamine, a nitrosimine, a diazetine dioxide, an oxatriazole 5-imine, an oxime, a hydroxylamine, a N-hydroxyguanidine, a hydroxyurea or a furoxan.

19. The method of claim 7, 10, 12 or 13, further comprising administering (i) at least one therapeutic agent; (ii) at least one nitric oxide donor compound; or (iii) at least one therapeutic agent and at least one nitric oxide donor compound.

20. The method of claim 19, wherein the therapeutic agent is an aldosterone antagonist, an alpha-adrenergic receptor antagonist, an angiotensin II antagonist, an angiotensin-converting enzyme inhibitor, an antidiabetic compound, an anti-hyperlipidemic compound, an antioxidant, an antithrombotic and vasodilator compound, a β-adrenergic antagonist, a calcium channel blocker, a digitalis, a diuretic, an endothelin antagonist, a hydralazine compound, a H_2 receptor antagonist, a neutral endopeptidase inhibitor, a nonsteroidal antiinflammatory compound, a phosphodiesterase inhibitor, a potassium channel blocker, a platelet reducing agent, a proton pump inhibitor, a renin inhibitor, a selective cyclooxygenase-2 inhibitor, or a combination of two or more thereof.

21 The method of claim 20, wherein the therapeutic agent is at least one compound selected from the group consisting of an aldosterone antagonist, an angiotensin II antagonist, an angiotensin-converting enzyme inhibitor, a β-adrenergic antagonist, a diuretic and a hydralazine compound.

22. The method of claim 21, wherein the aldosterone antagonist is eplerenone or spironolactone; the angiotensin II antagonist is candesartan cilexetil, eprosartan mesylate, irbesartan, losartan potassium, medoxomil, telmisartan,

trandolapril, trandolaprilat or valsartan; the angiotensin-converting enzyme inhibitor is benazepril hydrochloride, captopril, enalapril maleate, fosinopril sodium, lisinopril, moexipril hydrochloride or quinapril hydrochloride; the β-adrenergic antagonist is bisoprolol fumarate, carvedilol, metoprolol tartrate, propranolol hydrochloride or timolol maleate; the diuretic is amiloride hydrochloride, chlorthalidone, hydrochlorothiazide or triamterene; and the hydralazine compound is hydralazine hydrochloride.

23. The method of claim 19, wherein the nitric oxide donor compound is selected from the group consisting of a S–nitrosothiol, a nitrite, a nitrate, a S-nitrothiol, a sydnonimine, a NONOate, a N-nitrosoamine, a N-hydroxyl nitrosamine, a nitrosimine, a diazetine dioxide, an oxatriazole 5-imine, an oxime, a hydroxylamine, a N-hydroxyguanidine, a hydroxyurea or a furoxan.

24. A kit comprising at least one compound of claim 1.

25. The kit of claim 24, further comprising further comprising (i) at least one therapeutic agent; (ii) at least one nitric oxide donor compound; or (iii) at least one therapeutic agent and at least one nitric oxide donor compound.

26. The kit of claim 25, wherein the (i) at least one therapeutic agent; (ii) at least one nitric oxide donor compound; or (iii) at least one therapeutic agent and at least one nitric oxide donor compound are in the form of separate components in the kit.

27. A compound selected from the group consisting of:

(2S)-4-{[(1S,2S,5S,6R)-6-(nitrooxy)-4,8–dioxabicyclo[3.3.0]oct-2-yl]oxycarbonyl}-2-aminobutanoic acid, hydrochloride salt;

4-{{(2R)-2,3-bis(nitrooxy)propyl]oxycarbonyl}(2S)-2-aminobutanoic acid, hydrochloride salt;

(2S)-2-amino-4-{[2-(nitrooxy)ethyl]oxycarbonyl}butanoic acid, 2,2,2-trifluoroacetic acid;

(2S)-2-amino-4-[(2-(nitrooxy)ethyl]sulfonyl}ethyl)oxycarbonyl] butanoic acid, hydrochloride salt;

(2S)-2-amino-5-{4-[2-(nitrooxy)ethyl]piperidyl}-5-oxopentanoic acid; hydrochloride salt;

(2S)-4-{[(2S)-2,3-bis(nitrooxy)propyl]oxycarbonyl}-2-aminobutanoic acid,

hydrochloride salt;

(2S)-2-amino-4-[({4-[2-(nitrooxy)ethyl]phenyl}methyl) oxycarbonyl]butanoic acid, hydrochloride salt;

(2S)-2-amino-4-{N-[3-(nitrooxy)propyl]carbamoyl}butanoic acid, hydrochloride salt;

(2S)-2-amino-4-{N-[2,2-dimethyl-3-(nitrooxy)propyl]carbamoyl} butanoic acid, hydrochloride salt;

(2S)-2-amino-4-{[3-(nitrooxy)propyl]oxycarbonyl}butanoic acid, hydrochloride salt;

(2S)-2-amino-4-(N-{2-[2-(nitrooxy)ethoxy]ethyl}carbamoyl)butanoic acid, hydrochloride salt;

(2S)-2-amino-4-({2-(nitrooxy)-1-[(nitrooxy)methyl]ethyl} oxycarbonyl)butanoic acid, hydrochloride salt;

(2S)-2-amino-4-{[2,2-dimethyl-3-(nitrooxy)propyl]oxycarbonyl} butanoic acid, hydrochloride salt;

tert-butyl (2S)-2-[(tert-butoxy)carbonylamino]-4-(N-{2-(nitrooxy)-1-[(nitrooxy)methyl]ethyl}carbamoyl)butanoate;

(2S)-2-amino-4-[({4-[(nitrooxy)methyl]phenyl}methyl) oxycarbonyl]butanoic acid, hydrochloride salt;

(2S)-2-amino-5-[4-(nitrooxy)piperidyl]-5-oxopentanoic acid, hydrochloride salt;

(2S)-2-amino-4-({2-[4-(nitrooxy)piperidyl]ethyl}oxycarbonyl) butanoic acid, hydrochloride salt;

(2S)-2-amino-4-{[4-(nitrooxy)but-2-ynyl]oxycarbonyl}butanoic acid, hydrochloride salt

(2S)-4-{N-[(2S)-2,3-bis(nitrooxy)propyl]carbamoyl}-2-aminobutanoic acid, hydrochloride salt;

(2S)-2-amino-5-{4-[(nitrooxy)methyl]oiperidyl}-5-oxopentanoic acid, hydrochloride salt

(2*S*)-2-amino-5-{3-[4-(nitrooxy)piperidin-1-yl]propoxy}-5-oxopentanoic acid dihydrochloride salt

(2S)-2-amino-5-{3-[(nitrooxy)methyl]piperidyl}-5-oxopentanoic acid, hydrochloride salt;

(2S)-2-amino-4-[(3-{4-[2,2-dimethyl-3-(nitrooxy)propanoyl] piperazinyl} propyl)oxycarbonyl]butanoic acid; bis hydrochloride salt;

4-{[(3R)-3,4-bis(nitrooxy)butyl]oxycarbonyl}(2S)-2-aminobutanoic acid, hydrochloride salt;

(2S)-2-amino-4-({2,2-bis[(nitrooxy)methyl]-3-hydroxypropyl} oxycarbonyl)butanoic acid, hydrochloride salt;

(2S)-2-amino-4-({2,2-bis[(nitrooxy)methyl]-3-(nitrooxy)propyl}oxycarbonyl)butanoic acid, hydrochloride salt;

(2S)-2-amino-4-{[4,5-bis(nitrooxy)pentyl]oxycarbonyl}butanoic acid, hydrochloride salt;

(2S)-2-amino-4-[(2-{4-[2,2-dimethyl-3-(nitrooxy)propanoyl] piperazinyl} ethyl)oxycarbonyl]butanoic acid, bis hydrochloride salt.